



Bridge of the Month No 39, March 2014 Manchester Bridges



The most serious news

Repeated this month.

Is that piers are not as stable as I thought. The mechanism described in my paper at <http://www.icevirtuallibrary.com/content/article/10.1680/bren.11.00032>

says that the stabilising force is controlled by bending action between the two arch crowns. This in turn is controlled by elastic behaviour of the masonry over the full length of the viaduct. The diagonal between intrados at one crown and extrados at the next is not much longer than the horizontal distance between crowns so the wedging action is very limited.

I am working on the implications and will try to get more details out within the month.

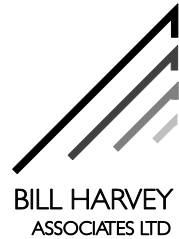
The seminar in Hertford had to be postponed for lack of interest. That leaves three customers waiting for revised dates and places. Two of those were planning to travel from Scotland so perhaps I need to go there. Will try to sort that out too. I suspect that the Hertford event will have to be moved to London to make it accessible.

Seminar for CASE consultants in Torbay on 15th April

Talk to ICE Exeter city club 15th May



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I don't know Manchester well and 19/20 March 2014 was the first time I had wandered at will. Well, I say at will but there was some element of direction.

I began walking along the canal and out to Liverpool Road where the original terminus of the world's first inter-city railway (<https://goo.gl/maps/6xkeb>) stands. Of course, Stephenson was a pioneer but not in engineering structures so much as in mechanics. Never the less, his bridge across the Irwell is worthy of note, if hard to see well. My pictures are therefore quite limited.



Grade I listed but crowded out. Stephenson's Irwell Bridge. Note is the extended voussoirs pattern, the modest cutwater and pier and the grime. The flood level is well marked by the clean stone.



This shot has been pushed a bit to show the soffit in a bit more detail. That is quite a collection of stalactites, but then it is rapidly approaching 200 years old. Would that some more recent bridges would look so good at that age.

Note also, the cast iron leg upstream.



The view from upstream is even more restricted. A branch was added later to provide a broader entrance into the station yard. That explains the cast iron leg.

Later in the day, and the following morning, a walk through the town centre turned up a few more bridges over the Irwell. Some of them, not being arches, are not so relevant to this note but interesting non-the-less.



This view of the Irwell from New Quay Street shows a string of bridges old and new, beginning with the truss/arch we are looking through, then an underslung suspension footbridge (Spinningfields which provides a good opportunity to link to [The Happy Pontist](#)), a stone arch and a cable footbridge of some elegance, the [Trinity Bridge](#). I realised belatedly that there is enough resolution in that to look more closely.



The [Albert Bridge](#) on Bridge Street, the middle one of these three is a single span segmental arch which replaced the two span New Bailey bridge in 1844.

The next bridges upstream are [Blackfriars](#) (Thomas Wright of Salford 1820)



And [Victoria Bridge](#) which replaced the mediaeval Salford Bridge in 1839.



Sorry for the grotty photo (there is a good Lancashire word) I will try to do better on a future visit. That is quite a slope on the road. I would expect to see some creep distortion in the arch but it wasn't possible in the time I had to take a better photo and think about that.

Finally, for this bit of entertainment we move up the hill from Victoria Bridge to the Cathedral Yard where we find, almost lost in buildings, the so called [Hanging Bridge](#). It used to cross the Hanging Ditch, a slightly disturbing name but the bridge was originally (1343) the Hengand Brigge. That might come from hen as in bird and Gan, an old Welsh word meaning between two hills.

